ABSTRACT

A new material is proposed which is created by replacing in SiON silicon atoms partially by atoms of a penta- or hexavalent element, or by incorporating mono- or divalent metals interstitially. The thereby introduced electron-donating element is attracted to the nitrogen site and stabilizes it in its twofold coordinated, and therefore negatively charged form. In this form, the hydrogen affinity of the nitrogen atoms is reduced if not completely eliminated. The achieved destabilization of hydrogen bound to nitrogen reduces the optical losses due to NH absorption.